

# ADAGE 4250

## THE PRICE/PERFORMANCE LEADER THAT UNDERSTANDS GRAPHICS BETTER THAN IBM



- DIRECT CONNECTION TO IBM CHANNEL SUPPORTS 12 DISPLAYS
- COMPATIBLE WITH MICROWAVE, TELEPHONE T1 OR FIBER OPTIC LINKS
- EXECUTES 3250 GRAPHICS COMMAND SET
- OFFERS EXTENDED GRAPHICS COMMAND SET

**ADAGE**  
INTERACTIVE COMPUTER GRAPHICS



## THE ADAGE ADVANTAGE

### ADAGE 4250 GRAPHICS

The ADAGE 4250 is a plug compatible replacement for the IBM 3250 Graphics System which incorporates the benefits of ADAGE's 12 years of experience in producing state-of-the-art computer graphics systems and years of attaching to 360/370 mainframes. The ADAGE 4250 represents the higher performance, lower cost alternative to 3250 graphics. The 4250 directly executes native IBM 3250 graphics orders while providing significant advantages over the 3250 to increase system efficiency and user flexibility.

#### Key Features Include:

- A network of high-speed microprogrammed processors which significantly reduce channel program execution time and allow faster interrupt handling and user interaction with complex images.
- Full duplex transmission rates of 3 megabaud at 1.5 miles (2,414 meters) or 1.5 megabaud at 3 miles (4,827 meters).
- Mainframe to console separation up to 3 miles (4,827 meters) over coaxial cable pairs.
- Microwave compatibility available
- 240 character sizes, 128 angles of character string rotation and 16 intensity levels.
- 12" (30.5cm) addressable matrix of 2048 X 2048.
- Local zoom to increase virtual display space to 96" (243.8cm) X 96" (243.8cm) available.
- Available data tablet and hardware window allows light pen emulation, digitizing and image windowing.

#### HARDWARE

##### The ADAGE 4250 consists of:

- A Channel Unit (CU/4201) which connects directly to an IBM 360/370 channel and provides data transmission to up to four groups of displays. Each group can consist of up to three displays for a total of 12 displays on one IBM channel connection.
- A Control Station (CS/4250) which contains the display controller mounted inside the console work station of the display station. The controller contains two microprogrammed processors, one to control interrupts and communications with the channel unit; the other containing the firmware to implement the IBM 3250 graphic order set, fetch and interpret data from the refresh buffer, perform all image manipulation, and handle all console interactive devices. The controller also contains the refresh buffer and high-speed stroke generator to convert digital data to analog signals for driving up to three displays. Interfacing for interactive console devices is contained in the controller. The CS/4250 display monitor is mounted on top of a large work surface which can accommodate the standard interactive devices (light pen, alphanumeric keyboard, and 32 programmable lighted function keys), plus the optional data tablet or alphanumeric function keyboard.
- Two Display Stations (DS/4250) can be added to a CS/4250 for a total of three displays separated by 190 feet (58 meters) in a group. Each display station is identical in appearance to the CS/4250, but does not contain a controller.

### SPECIFICATIONS SUMMARY

#### CU/4201 Channel Unit

- Input: Standard IBM 360/370 selector, or block multiplexer channel
- Input Control: Microprogrammed processor with local buffer memory which recognizes 16 device addresses
- Output Control: Four microprogrammed processors, each capable of supporting a CS/4250 Control Station (a total of 12 displays can be supported by each CU/4201)

#### WORLDWIDE SALES and SERVICE

ADAGE Sales & Service representatives are located throughout the U.S., Europe, and Japan



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#### Outputs:

- Rates: 3 megabaud at 1.5 miles (2,414 meters); 1.5 megabaud at 3 miles (4,827 meters)
- Distance: Up to 3 miles (4,827 meters)
- Cable: Customer supplied RG-11U coaxial cable pairs
- Mode: Full duplex

- Special Feature: Self-contained readiness test

#### CS/4250 Control Station

##### DISPLAY CONTROLLER

- Data I/O: Microprogrammed processor controlled; full duplex communications up to 3 megabaud
- Local Refresh Buffer Memory: 16K bytes per console; minimum 32K bytes supplied

#### Microprogrammed Graphics Processor

- Graphic Orders: IBM 3250 plus extensions
- Microinstruction Word Length: 56 bits
- Data Word Length: 16 bits
- Cycle Time: 200 nanoseconds
- Control Store Memory: 4K X 56-bit words of ROM
- Scratch Pad Memory: 256 X 16 bit words
- Number of Displays Controlled: Up to 3

#### Vector Generation

- Drawing Method: Stroke
- Display Space: 12" X 12" (30.5cm X 30.5cm)
- 12" (30.5 cm) Addressable Matrix: 2048 X 2048
- Resolution: .006 inches (.15mm)
- Drawing Rate: 600,000 in/sec (15,240 M/sec)
- Move Rate (Blanked): 1,200,000 in/sec (30,480 M/sec)
- Vector Textures: Solid, Dash, Dot, Dot-Dash, and Point
- Intensity Levels: 16
- Maximum Refresh Rate: 60 frames per second

#### Symbol Generation

- Character Set: 95 ASCII plus 27 special symbols
- Character Sizes: 240 sizes from .08" (.20cm) to 1.3" (3.3cm)
- Average Drawing Time: 4.9 microseconds
- Character String Rotations: Vertical, horizontal, or 128 angles
- Intensity Levels: 16

### DISPLAY AND INTERACTIVE DEVICES

#### Display Monitor

- Size: 21" (53.3cm) diagonal
- Type: Rectangular monochrome
- Precision Area: 10" (25.4 cm) X 10" (25.4cm)
- Usable Area: 13" (33cm) X 18" (45.7cm)
- Line Width: .015" (.38mm) typical; .020" (.50mm) maximum
- Phosphor: P40

#### Standard Interactive Devices

- ANK: Alphanumeric keyboard
- LPN: High-speed light pen
- PFK: 32 lighted programmable function keys

#### Miscellaneous

- Console table and work surface
- Self-contained readiness test

#### DS/4250 Display Station

- Display Monitor: Same as CS/4250 display monitor
- Interactive Devices: ANK, LPN, PFK standard
- Console table and work surface standard

NOTE: A total of 3 displays can be driven by the display controller. The third display (2nd DS/4250) requires the DS3A third display adapter.

#### Options

- Hardware Window: Allows light pen emulation with the data tablet
- 11" (28cm) Data Tablet: Allows light pen emulation with the hardware window
- AFK: Alphanumeric Function Keyboard (includes numeric keypad and "ZOOM" keys).
- Graphic Enhancements include:
  - Local "ZOOM" to increase and translate the virtual display space to 96" (243.8cm) X 96" (243.8cm). Requires the AFK option.
  - Enables the data tablet to be used as a digitizer.
  - Enables programmatic setting of hardware window boundaries
- Microwave Adapter: Interfaces the channel unit and the control station to a 1.544 megabit/sec. microwave transmitter, telephone T1 or fiber optic link
- Local Hard Copy Device: Produces high resolution hard copy of the CRT display locally without host CPU software or overhead required